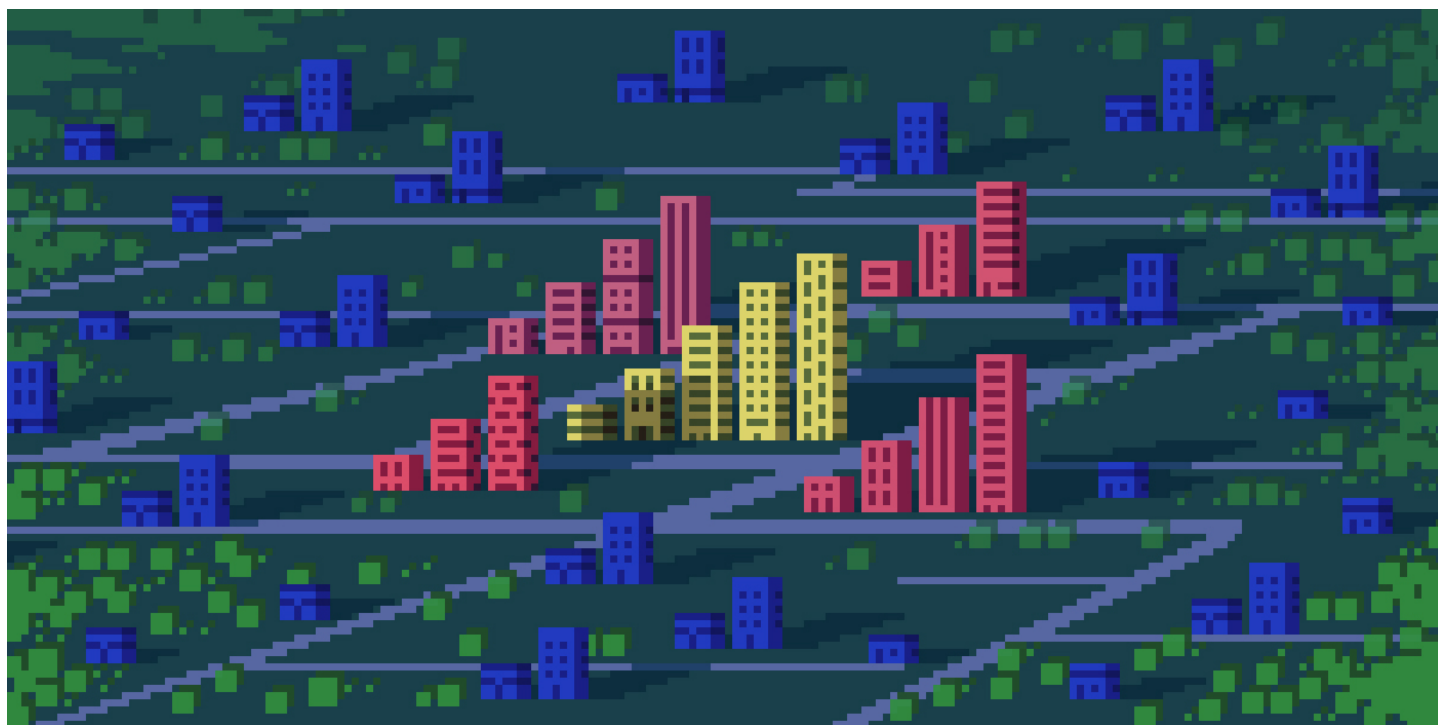


DIGITAL DIVIDES

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How Romania brought broadband to a whole country—and who got left behind (<http://kernelmag.dailydot.com/issue-sections/headline-story/16900/romanian-digital-divide/>)

By Christine Ro

Middle-aged Ioan (who asked that his name be changed) lives in Răscruți, a Romanian village of 1,650 people. Just 15 miles from the major city of Cluj, it's both rural and suburban, with many residents employed in farming, trades, and factory work. On summer days, a beat-up van roves the streets, announcing watermelons for sale from a DIY loudspeaker.

Ioan has two jobs. He's a part-time shepherd working the local grazing lands. He also works at the nearest airport, ferrying people to and from planes operated by the budget airlines.

For Ioan, internet access is irrelevant. The internet doesn't matter, he says, "for people like us who work, because we don't have time." Other Răscruțians his age and older voice a similar sentiment: internet access isn't too expensive. It's just something for younger people.

Ioan has a basic cell phone, but many of his older acquaintances rely on landlines; an 84-year-old friend rebuffed his relatives' efforts to give him a mobile phone. "I don't want to be bothered all day long by that thing," he says.

That's not to say Ioan and his friends are disconnected. Romania's population is about 20 million, while some additional four million Romanians live abroad; the preference for landlines may be a generational one, but it keeps older Romanians in touch with their distant loved ones. Of course, there's some irony in their eschewing cell phones, given that Nokia, once the world's largest mobile phone manufacturer, used to have a factory located less than a mile away.

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Maria Revnic used to work for Nokia. She's in her 20s, lives in Cluj, and has already held four jobs in Romania's technology sector (the country boasts the most IT workers per capita (<http://www.forbes.com/sites/alisoncoleman/2014/12/21/noromania-sets-its-sights-on-becoming-tech-start-up-capital-of-europe/#439dbffa474b>) in Europe). Like many tech workers in Cluj, she lauds the benefits of her industry, saying increased competition has improved labor conditions not just for her, but for other sectors as well. Romania's tech industry is good for women, she says; in fact, it's good for everyone.

How has Romania become such a well-wired country, turning cities into connectivity hubs that attract young IT talent like Revnic? Conversely, why are older people like Ioan largely uninterested in this transformation in connectivity, despite its role in transforming the national economy?

In March, U.S. Democratic contender Bernie Sanders tweeted (<https://twitter.com/berniesanders/status/705171336381923328>), "Today, people living in Bucharest, Romania have access to much faster Internet than most of the US. That's unacceptable and must change." A later tweet declared (<https://twitter.com/berniesanders/status/705183930744311808>), "High-speed Internet access is no longer a luxury. It's crucial for rural America to be connected and do business with the rest of the world."

In context, Sanders seems to have been calling for the U.S. to improve its own broadband offerings. But many Romanians took offense (<http://www.npr.org/2016/03/05/469314245/bernie-sanders-ticks-off-romanians-on-twitter-over-internet-speed-tweet>), interpreting the first tweet as suggesting their country is too backward to have broadband superiority over the U.S. But just a month before the Sanders tweet, the World Bank had noted that nine of the top 15 cities with the fastest broadband internet (<http://www.worldbank.org/en/news/speech/2016/02/09/bridging-gaps-and-sustaining-development-with-digital-technologies>) are in Romania. Romanians—even in rural areas like Râșcruci—are justifiably proud that their average download speed, at 50 Mbps (<http://motherboard.vice.com/read/why-romania-internet-is-so-much-faster-than-americas>), is more than twice the U.S. average. Soon after the tweet, a trio of Romanians created berniespeedtest.com (<http://berniespeedtest.com/>), which lets anyone compare their broadband speed to Bucharest's.

High-speed connectivity has been a boon to the country's economy, helping to spur tech niches like game and software development. Tax breaks have made it an attractive destination for tech outsourcing, and prompted homegrown innovation in areas such as biotechnology. And so-called "digital nomads" are increasingly finding Romania an inexpensive, technologically sophisticated place to park themselves.

Yet the same World Bank study (http://www-wds.worldbank.org/external/default/WDSPContentServer/WDSP/IB/2016/01/13/090224b08405ea05/2_0/Rendered/PDF/World0developm0000di) that applauded Romania's well-connected cities cautioned about a digital divide. A much larger share of Romanians have ultra-fast internet connections compared to other European countries, yet one-third of the country's population (<https://ec.europa.eu/digital-single-market/scoreboard/romania>) has never used the internet. Half of all households have no broadband connection—half of households don't even have a computer, for that matter.

In part, the disparity breaks down along geographical lines. Romania's cities tend to be well-connected and very tech-literate. Yet the internet is considered unimportant in many of its rural areas, where more than half the population lives. This pattern is similar worldwide: One global estimate is that 64 percent of those (http://www.mckinsey.com/~media/McKinsey/dotcom/client_service/High%20Tech/PDFs/Offline_and_falling_behind_Barriers_to_Internet_ad) who have not accessed the internet in the past year live in rural areas.

Another factor may be simple generational differences. But the generation gap in Romania has unique historical facets. Alin Maniu, a Cluj-based entrepreneur in his 20s, says, "The older people in Romania are of two worlds." Raised under Nicolae Ceaușescu, the communist dictator who ruled Romania from 1967 to 1989, they've seen their country undergo a radical transformation, emerging from Communism into an entirely different world, and, Maniu says, "they don't like change at all."

The change has been rapid. Just a decade ago, Romania's communications infrastructure was still fairly sparse, with only 20 percent of people covered by fixed telephony lines and 5.5 percent served by broadband (http://www.itu.int/ITU-D/treg/broadband/BB_MDG_Romania_BBCOM.pdf). In the first decades of Romanian capitalism, entrepreneurs stepped into the breach, and focused on quickly establishing broadband coverage in urban neighborhoods. The national telecom provider became just one option among many, with no primacy over the scrappy young providers.

Maria Revnic, the tech worker from Cluj, was a child during the post-Communist transition. "We were like sponges, so curious about everything outside," she says. Under the Communist regime they'd had only one or two television stations broadcasting only a few hours of programming a day. They were hungry for more options.

Like TV, when the internet arrived, it was popular. Cătălin Marinescu, the president of ANCOM, Romania's independent telecom regulator, suggests that the ease with which his countrymen adopted English—the primary language of the internet—set Romania apart from its neighboring countries. (It helped that Romanian is not a Slavic language but a Romance one, which made learning English easier.)

In the cities, DIY-style networks began to pop up. They could be started cheaply, with minimal equipment: Marinescu remembers how two students connected his building and the residents took up a collection to cover the cost. Technologically, cities leapfrogged past DSL into the realm of aerial fiber and very fast speeds. An unregulated market meant serious competition, pushing prices down and speeds up. Coverage ballooned as network providers sought out new markets.

Still, today there are hundreds of remote villages where providing internet access is a challenge. In one tiny hillside village, Scărișoara (or "Little Staircase"), access arrived via helicopter, with mobile telecom equipment installed higher up the hill. Because the village has no power lines, the equipment was powered by solar panels and a backup generator. All of this elaborate setup was to meet the internet operator's obligation, imposed by ANCOM following a spectrum auction, to extend coverage to unserved areas.

Overall, though, most of the country has plenty of options. ANCOM's Marinescu reports that 97 percent of the country can choose between at least two internet service providers. Many U.S. consumers would envy that degree of choice. Marinescu puts it starkly: "For a consumer, it's better to be in Europe. For an operator, it's better to be in the U.S." Competition helps drive down prices: in the U.S., *basic* broadband internet access costs about \$528 per year (<http://money.usnews.com/money/personal-finance/mutual-funds/articles/2013/10/24/are-technology-costs-killing-your-budget>), while in Romania, *high-speed* internet prices are approximately half that—the lowest costs in the European Union. Those in Râscruci report paying even less than that, while in Cluj, an unlimited mobile data plan can be as cheap as a few dollars per month.

This doesn't mean that internet services are affordable for everyone, of course. The EU's statistics agency has calculated that 40 percent of the Romanian population is at risk of poverty or social exclusion (http://ec.europa.eu/eurostat/statistics-explained/index.php/People_at_risk_of_poverty_or_social_exclusion). For economically marginalized groups, even a few dollars a month can be a price too high to pay.

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A study commissioned by Google (<http://www.delab.uw.edu.pl/wp-content/uploads/2016/05/DELAB-raport-B5-ROMANIA.pdf>) underscores the point that Romania is not a broadband utopia. Despite ranking near the top of European Union countries for subscriptions to fast internet and individual use of social media, it ranks near the bottom in categories such as integration of digital technology, connectivity, and human capital. While government agencies try to make more services accessible, such as online tax payments, and merchants begin to slowly develop e-commerce infrastructure, the report sums up the problem: "The poor digital skills of Romanian society creates an especially big obstacle for going digital."

Thus far, "going digital" has primarily meant providing internet access to as many people as possible. The Biblionet program, completed in 2014, aimed to modernize Romania's libraries with computers and internet access. Reportedly, 600,000 Romanians (<https://www.irex.org/projects/biblionet-global-libraries-romania>) have accessed the internet for the first time at the upgraded libraries. Meanwhile, a handful of government projects aim to raise Romania's broadband coverage to 100 percent—this includes mandating that operators bring coverage to underserved areas, as in Scărișoara.

"Digital skills," though, have proven harder to develop. Most of Romania can now access the internet, but what about people like Ioan in Râscruci, who see no point in doing so? He talks of being tired from working two jobs and is self-conscious about the holes in his clothes, yet says he doesn't see any utility in online job boards for himself. His neighbor Octavia uses her landline to call her relatives working in Italy and doesn't think it's worthwhile to take advantage of free internet video calls. Both see the internet as being for other people: younger people, more educated people, people with office jobs.

In some ways, the commercial and technological hurdles of providing universal, high-speed internet access at low cost have been the easiest to clear in Romania. That effort has largely been successful, making the country proud of its connectivity. Now comes the hard part: convincing people like Ioan to take advantage of it.

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